

## **REMARKS**

Claims 1-8 were pending in the instant application. Claims 1-4 and 6-8 have been amended. Claim 5 has been canceled. Upon entry of these amendments, claims 1-4 and 6-8 are pending and under consideration.

### **I. CLAIM AMENDMENTS**

Claim 1 has been amended to specify adhesive monomers useful for practicing the invention. Support for these amendments can be found in the specification, for example, on page 8 through 10 in paragraphs [0024] to [0028]. Claims 1-4 and 6-8 have been amended for clarity.

Applicants respectfully submit that the above amendments are fully supported by the specification and claims as originally filed, and that no new matter has been introduced by these amendments. Entry thereof is respectfully requested.

### **II. NEITHER HAN ET AL. NOR HUANG ET AL. RENDERS THE CLAIMED INVENTION OBVIOUS**

Claims 1-8 remain rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Han *et al.* (U.S. Patent 6,339,113, hereinafter, “the ’113 patent”) in view of Huang *et al.* (U.S. Patent 4,966,934, hereinafter, “the ’934 patent”). In particular, the Examiner is of the opinion that it would have been obvious to one skilled in the art at the time of the invention to add adhesive monomers and to add HEMA taught by the ’934 patent to the compositions disclosed by the ’113 patent. Applicants respectfully traverse the rejection. Reconsideration is respectfully requested in view of the amendments to the claims.

Under the current law, prior art references cannot render a claim obvious unless the PTO provides evidence that the references meet a three-part test for *prima facie* obvious. To begin with, the prior art reference or references must provide “motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant.” See *In re Kotzab*, 217 F.3d 1365, 1370, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000); *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 2005 WL 1355127, at \*4, 75 U.S.P.Q.2d 1051, 1054 (Fed. Cir. 2005). Where one reference is relied upon by the PTO, there must be a suggestion or motivation to modify the teachings of that reference. See *In re Kotzab*, 217 F.3d at 1370, 55 U.S.P.Q.2d at 1316-17. Where an obviousness determination relies on the combination of two or more references, there must be some suggestion or motivation to combine the

references. See *WMS Gaming Inc. v. International Game Technology*, 184 F.3d 1339, 1355, 51 U.S.P.Q.2d 1385, 1397 (Fed. Cir. 1999); *Princeton Biochemicals, Inc.*, 2005 WL 1355127, at \*4, 75 U.S.P.Q.2d at 1054; *Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 1334, 63 U.S.P.Q.2d 1374, 1387 (Fed. Cir. 2002). Second, the prior art references cited by the PTO must suggest to one of ordinary skill in the art that the invention would have a reasonable expectation of success. See *In re Dow Chemical*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1532 (Fed. Cir. 1988); *Boehringer Ingelheim Vetmedica, Inc.*, 320 F.3d 1339, 1354, 65 U.S.P.Q.2d 1961, 1971 (Fed. Cir. 2003); *Noelle v. Lederman*, 355 F.3d 1343, 1352, 69 U.S.P.Q.2d 1508, 1516 (Fed. Cir. 2004). Further, “[b]oth the suggestion and the reasonable expectation of success ‘must be founded in the prior art, not in the applicant’s disclosure.’” *Noelle*, 355 F.3d at 1352, 69 U.S.P.Q.2d at 1515-16 (quoting *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991)). Finally, the PTO must show that the prior art references, either alone or in combination, teach or suggest each and every limitation of the rejected claims. See *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1473, 43 U.S.P.Q.2d 1481, 1490 (Fed. Cir. 1997); *Litton Systems, Inc. v. Honeywell, Inc.*, 87 F.3d 1559, 1569, 39 U.S.P.Q.2d 1321, 1327 (Fed. Cir. 1996). If any one of these three factors is not met, the PTO has failed to establish a *prima facie* case of obviousness and the applicant is entitled to grant of a patent without making any affirmative showing of non-obviousness.

In this case, Applicants respectfully submit that the Examiner has not shown that, prior to this invention, the cited references, alone or in combination, would have provided any teaching or suggestion of the claimed invention, or motivation to modify or combine the cited references. Further, the references fail to suggest each and every claim element, much less provide a reasonable expectation of success.

The present invention defined in amended Claim 1 is directed to a light-curing dental adhesive composition comprising a multifunctional prepolymer mixture, a hydrophylic monomer, a photoinitiation system, a diluent and an adhesive monomer containing functional groups such as carboxylic acid and its derivatives, phosphoric acid and sulfonic acid groups. The key feature of the instant invention is the use of the adhesive monomers containing the above-mentioned chemical moieties in order to achieve high dentine adhesion strength (about 30 MPa), as shown in Tables 1 and 3 of the specification. As admitted by the Examiner (Office Action, page 4, first paragraph), the ’113 patent does not teach an addition of an adhesive or a hydrophilic monomer to a dental composition, and rather relates to a photopolymerizable composite resin composition

for dental restoration comprising a multifunctional prepolymer mixture, a photoinitiation system, a diluent, and inorganic filler. The Examiner has not demonstrated that '113 patent discloses or suggests an essential element of the claimed invention herein, *e.g.*, the use of the specific claimed adhesive or hydrophilic monomer. Indeed, one of ordinary skill in the art at the time of the invention would not have been motivated by '113 patent to use the recited monomers in the claimed compositions. The Examiner has not established that '113 patent provides a motivation to modify its disclosure so as to obtain the claimed compositions, much less such modifications and reasonable expectation of success. Further, the '113 patent does not teach each and every limitation of the composition as claimed and thus does not render claims 1-8 obvious.

The '934 patent does not remedy the deficiencies of the '113 patent. Although the '934 patent teaches that phosphorus derivatives may be used as adhesive promoters (*see*, col. 6, lines 15-68), the reference in fact uses PENTA (dipentaerythritol pentaacrylate phosphoric acid ester) (*see*, Example 2, claim 1) as an adhesive monomer, which is distinct from the phosphoric monomers used in the instant invention. Thus, the '934 patent provides neither suggestion nor motivation to combine its teachings with those of the '113 patent to arrive at the composition as claimed. As such, contrary to the Examiner's allegation that it would have been obvious to one skilled in the art to add the adhesive monomers taught by the '934 patent to the compositions disclosed by the '113 patent with a reasonable expectation of success, it would not. Therefore, the '113 patent alone or in combination with the '934 patent does not render claims 1-8 obvious. Accordingly, it is respectfully requested that the rejection of claims 1-8 under 35 U.S.C. 103(a) be withdrawn.

Next, claims 1-8 remain rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Han *et al.* (U.S. Patent 6,573,312, hereinafter, "the '312 patent") in view of Huang *et al.* (U.S. Patent 4,966,934, hereinafter, "the '934 patent"). In particular, the Examiner is of the opinion that it would have been obvious to one skilled in the art at the time of the invention to add adhesive monomers and to add HEMA taught by the '934 patent to the compositions disclosed by the '312 patent. Applicants respectfully traverse the rejection. Reconsideration is respectfully requested in view of the amendments to the claims.

As the caveat of the rejection over the '312 patent is similar to that over the '113 patent, Applicants refer to the arguments presented above. Similarly, the '934 patent does not remedy the deficiencies of the '312 patent. As the '934 patent teaches phosphorus derivatives, which are distinct from phosphoric monomers used in the instant invention as discussed above, Applicants

respectfully submit that the '934 patent provides neither suggestion nor motivation to combine its teachings with those of the '312 patent to arrive at the composition as claimed, with a reasonable expectation of success, as legally required. See *In re Dow Chemical*, supra. Applicants further submit that the '312 patent in combination with '934 patent does not teach each and every limitation of the claimed composition. Therefore, the '312 patent alone or in combination with the '934 patent does not render claims 1-8 obvious. Applicants respectfully submit that a *prima facie* case of obviousness has not been established.

Further, the dental adhesive composition comprising an adhesive monomer of the present invention has superior adhesion strength on both the teeth and the dental restoration material over the composition comprising the adhesion promoter as described in the cited art. As the Examiner is well aware, such unexpected results can rebut even a *prima facie* case of obviousness. *In re May*, 574 F.2d 1082, 1094 (C.C.P.A. 1978); *In re Chupp*, 816 F.2d 643, 646 (Fed. Cir. 1987); and *Ortho-Mcneil Pharmaceutical v. Mylan Laboratories*, 348 F.Supp.2d 713, 755 (N.D.W.Va. 2004).

Accordingly, it is respectfully requested that the rejection of claims 1-8 under 35 U.S.C. 103(a) be withdrawn.

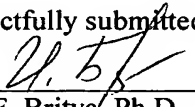
### **III. NONSTATUTORY DOUBLE PATENTING**

Claims 1-8 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of co-pending application Serial No. 10/699,117 (hereinafter, the '117 application) in view of Huang *et al.* (U.S. Patent No. 4,966,934). Without acquiescing to the rejection of the Examiner and solely to promote the progress of the present application, Applicants submit a Terminal Disclaimer. It is respectfully requested that the rejection be withdrawn in view of the Terminal Disclaimer and the fee filed herewith.

### **CONCLUSION**

In light of the above remarks, Applicants respectfully submit that claims 1-4 and 6-8 satisfy all the criteria for patentability and are in condition for allowance. An early indication thereof is kindly solicited.

No fees other than the Terminal Disclaimer fee, are believed to be due. However, the Commissioner is hereby authorized to charge any required fee(s) to Jones Day Deposit Account No. 50-3013 (referencing Attorney Docket No. 8111-034-999).

Respectfully submitted,  
  
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